

Docket No. 247553US2

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Fumihiko AIGA, et al.

SERIAL NO: New Application

GAU:

FILED: Herewith

EXAMINER:

FOR: FILTER CIRCUIT

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



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**STATEMENT OF RELEVANCY**

**Reference AO (2001-60803) on Form PTO-1449:**

This discloses the filters which have real and pure imaginary zeros of the transfer function. But it does not disclose filters which have complex zeros.

**Reference AW Form PTO-1449:**

This shows the canonical linear phase filters. But it is different to realize large pole canonical filters with microstrip lines because of the unexpected couplings between resonators.

**Reference AX on Form PTO-1449:**

This shows one of the variations of the canonical filter with coaxial cavities. But it is difficult to realize such filter with microstrip lines.

**Reference AY on Form PTO-1449:**

This shows the cascaded quadruplet (CQ) filters. CQ filters can realize real and pure imaginary zeros of the transfer function. But CQ filters cannot realize complex zeros for the group delay equalization.

**Reference AZ on Form PTO-1449:**

This shows the 8-pole cascaded quadruplet filter based on the 8-pole canonical filter whose coupling between the first resonator and 8<sup>th</sup> resonator is zero.

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 247553US2		SERIAL NO. New Application	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Fumihiko AIGA, et al.			
				FILING DATE Herewith		GROUP	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES                  NO		
	AO	2001-60803	03/06/01	Japan (with English Abstract)			X
	AP						
	AQ						
	AR						
	AS						
	AT						
	AU						
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW	John David RHODES, "A Low-Pass Prototype Network For Microwave Linear Phase Filters ", IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, Vol. MTT-18, No. 6, June 1970, Pages 290-301					
	AX	Gerhard PFITZENMAIER, "Synthesis and Realization of Narrow-Band Canonical Microwave Bandpass Filters Exhibiting Linear Phase and Transmission Zeros", IEEE TRNASACTONS ON MICROWAVE THEORY AND TECHNIQUES, Vol. MTT-30, No. 9, September 1982, Pages 1300-1311					
	AY	Ralph LEVY, "Direct Synthesis of Cascaded Quadruplet (CQ) Filters", IEEE TRNASACTONS ON MICROWAVE THEORY AND TECHNIQUES, Vol. 43, No. 12, December 1995, Pages 2940-2945					
	AZ	Richard J.Cameron, et al., "Asymmetric Realizations for Dual-Mode Bandpass Filters", IEEE TRNASACTONS ON MICROWAVE THEORY AND TECHNIQUES, Vol. MTT-29, No. 1, January 1981, Pages 51-58				<input type="checkbox"/> Additional References sheet(s) attached	
Examiner					Date Considered		
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							